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### 1 A robust gross-to-fine pattern recognition system

*Al-Mouhamed, M.;*

Industrial Electronics, IEEE Transactions on , Volume: 48 , Issue: 6 , Dec. 2001

Pages:1226 - 1237

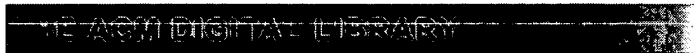
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Relevance scale ☐ ☐ ☐ ☐ ☐**1** [Analysis of predictive spatio-temporal queries](#)

Yufei Tao, Jimeng Sun, Dimitris Papadias

December 2003 **ACM Transactions on Database Systems (TODS)**, Volume 28 Issue 4Full text available: [pdf\(575.50 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Given a set of objects  $S$ , a spatio-temporal *window query*  $q$  retrieves the objects of  $S$  that will intersect the window during the (future) interval  $q_T$ . A *nearest neighbor query*  $q$  retrieves the objects of  $S$  closest to  $q$  during  $q_T$ . Given a threshold  $d$ , a spatio-temporal *join* retrieves the pairs of objects from two datasets that will come within distance  $d$  from each other during  $q$ .

**Keywords:** Database, histogram, nearest distance, selectivity, spatio-temporal**2** [Predictive engineering models based on the EPIC architecture for a multimodal high-performance human-computer interaction task](#)

David E. Kieras, Scott D. Wood, David E. Meyer

September 1997 **ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 4 Issue 3Full text available: [pdf\(368.70 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Engineering models of human performance permit some aspects of usability of interface designs to be predicted from an analysis of the task, and thus they can replace to some extent expensive user-testing data. We successfully predicted human performance in telephone operator tasks with engineering models constructed in the EPIC (Executive Process-Interactive Control) architecture for human information processing, which is especially suited ...

**Keywords:** cognitive models, usability engineering**3** [A formal model for reasoning about adaptive QoS-enabled middleware](#)

Nalini Venkatasubramanian, Carolyn Talcott, Gul A. Agha

January 2004 **ACM Transactions on Software Engineering and Methodology (TOSEM)**, Volume 13 Issue 1Full text available: [pdf\(1.42 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Systems that provide distributed multimedia services are subject to constant evolution; customizable middleware is required to effectively manage this change. Middleware services for resource management execute concurrently with each other, and with application activities, and can, therefore, potentially interfere with each other. To ensure cost-effective QoS in distributed multimedia systems, safe composability of resource management services

is essential. In this article, we present a meta-arc ...

**Keywords:** Middleware services, actors, meta-object models, multimedia, quality-of-service, reflection, theoretical foundations

#### 4 Fast detection of communication patterns in distributed executions

Thomas Kunz, Michiel F. H. Seuren

November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research**

Full text available:  [pdf\(4.21 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams are often used to obtain a better understanding of the execution of the application. The visualization tool we use is Poet, an event tracer developed at the University of Waterloo. However, these diagrams are often very complex and do not provide the user with the desired overview of the application. In our experience, such tools display repeated occurrences of non-trivial commun ...

#### 5 A framework for modeling and implementing visual notations with applications to software engineering

Gennaro Costagliola, Vincenzo Deufemia, Giuseppe Polese

October 2004 **ACM Transactions on Software Engineering and Methodology (TOSEM)**, Volume 13 Issue 4

Full text available:  [pdf\(3.77 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present a framework for modeling visual notations and for generating the corresponding visual programming environments. The framework can be used for modeling the diagrammatic notations of software development methodologies, and to generate visual programming environments with CASE tools functionalities. This is accomplished through an underlying modeling process based on the visual notation syntactic model of eXtended Positional Grammars (XPG, for short), and the associated parsing methodolo ...

**Keywords:** LR parsing, UML, meta-CASE, metamodeling, software engineering models, visual grammars, visual notations

#### 6 DB-5 (databases): potpourri: Motion adaptive indexing for moving continual queries over moving objects

Bugra Gedik, Kun-Lung Wu, Philip Yu, Ling Liu

November 2004 **Proceedings of the Thirteenth ACM conference on Information and knowledge management**

Full text available:  [pdf\(292.32 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes a <i>motion adaptive</i> indexing scheme for efficient evaluation of moving continual queries (MCQs) over moving objects. It uses the concept of <i>motion-sensitive bounding boxes</i> (<i>MSB</i>s) to model moving objects and moving queries. These bounding boxes automatically adapt their sizes to the dynamic motion behaviors of individual objects. Instead of indexing frequently changing object positions, we index less frequently changing object and ...

**Keywords:** continual queries, moving object databases

#### 7 Evolutionary algorithms in data mining: multi-objective performance modeling for direct marketing

Siddhartha Bhattacharyya

August 2000 **Proceedings of the sixth ACM SIGKDD international conference on Knowledge discovery and data mining**

Full text available:  [pdf\(115.20 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** Pareto-optimal models, data mining, database marketing, evolutionary computation, multiple objectives

## 8 System-level power optimization: techniques and tools

Luca Benini, Giovanni de Micheli

April 2000 **ACM Transactions on Design Automation of Electronic Systems (TODAES)**, Volume 5 Issue 2

Full text available:  [pdf\(385.22 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This tutorial surveys design methods for energy-efficient system-level design. We consider electronic systems consisting of a hardware platform and software layers. We consider the three major constituents of hardware that consume energy, namely computation, communication, and storage units, and we review methods of reducing their energy consumption. We also study models for analyzing the energy cost of software, and methods for energy-efficient software design and compilation. This survey ...

## 9 Six degree-of-freedom haptic display of polygonal models

Arthur Gregory, Ajith Mascarenhas, Stephen Ehmann, Ming Lin, Dinesh Manocha

October 2000 **Proceedings of the conference on Visualization '00**

Full text available:  [pdf\(98.83 KB\)](#) Additional Information: [full citation](#), [citations](#), [index terms](#)

**Keywords:** force-feedback devices, haptics, interactive computer graphics, virtual reality

## 10 Computational strategies for object recognition

Paul Suetens, Pascal Fua, Andrew J. Hanson

March 1992 **ACM Computing Surveys (CSUR)**, Volume 24 Issue 1

Full text available:  [pdf\(6.37 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

This article reviews the available methods for automated identification of objects in digital images. The techniques are classified into groups according to the nature of the computational strategy used. Four classes are proposed: (1) the simplest strategies, which work on data appropriate for feature vector classification, (2) methods that match models to symbolic data structures for situations involving reliable data and complex models, (3) approaches that fit models to the photometry and ...

**Keywords:** image understanding, model-based vision, object recognition

## 11 Investigating quality factors in object-oriented designs: an industrial case study

Lionel C. Briand, Jürgen Wüst, Stefan V. Ikononovski, Hakim Lounis

May 1999 **Proceedings of the 21st international conference on Software engineering**

Full text available:  [pdf\(1.41 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** cohesion, coupling, empirical validation, measurement, metrics, object-oriented

## 12 Latent semantic models for collaborative filtering

Thomas Hofmann

January 2004 **ACM Transactions on Information Systems (TOIS)**, Volume 22 Issue 1

Full text available:  [pdf\(250.03 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Collaborative filtering aims at learning predictive models of user preferences, interests or behavior from community data, that is, a database of available user preferences. In this article, we describe a new family of model-based algorithms designed for this task. These algorithms rely on a statistical modelling technique that introduces latent class variables in a mixture model setting to discover user communities and prototypical interest profiles. We investigate several variations to deal with ...

### 13 Information warfare: Incentive-based modeling and inference of attacker intent, objectives, and strategies

Peng Liu, Wanyu Zang

October 2003 **Proceedings of the 10th ACM conference on Computer and communications security**

Full text available:  [pdf\(332.06 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Although the ability to model and infer Attacker Intent, Objectives and Strategies (AIOS) may dramatically advance the literature of risk assessment, harm prediction, and predictive or proactive cyber defense, existing AIOS inference techniques are ad hoc and system or application specific. In this paper, we present a general incentive-based method to model AIOS and a game theoretic approach to infer AIOS. On one hand, we found that the concept of incentives can unify a large variety of attacker ...

**Keywords:** attack prediction, computer security, game theory

### 14 "Is this document relevant?...probably": a survey of probabilistic models in information retrieval

Fabio Crestani, Mounia Lalmas, Cornelis J. Van Rijsbergen, Iain Campbell

December 1998 **ACM Computing Surveys (CSUR)**, Volume 30 Issue 4

Full text available:  [pdf\(265.85 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

This article surveys probabilistic approaches to modeling information retrieval. The basic concepts of probabilistic approaches to information retrieval are outlined and the principles and assumptions upon which the approaches are based are presented. The various models proposed in the development of IR are described, classified, and compared using a common formalism. New approaches that constitute the basis of future research are described.

**Keywords:** information retrieval, probabilistic indexing, probabilistic modeling, probabilistic retrieval, uncertain inference modeling

### 15 Special issue on the fusion of domain knowledge with data for decision support: Fusion of domain knowledge with data for structural learning in object oriented domains

Helge Langseth, Thomas D. Nielsen

December 2003 **The Journal of Machine Learning Research**, Volume 4



Full text available:  [pdf\(227.18 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

When constructing a Bayesian network, it can be advantageous to employ structural learning algorithms to combine knowledge captured in databases with prior information provided by domain experts. Unfortunately, conventional learning algorithms do not easily incorporate prior information, if this information is too vague to be encoded as properties that are local to families of variables. For instance, conventional algorithms do not exploit prior information about repetitive structures, which are ...

### 16 Learning methods to combine linguistic indicators: improving aspectual classification and revealing linguistic insights

Eric V. Siegel, Kathleen R. McKeown

December 2000 **Computational Linguistics**, Volume 26 Issue 4

Full text available:  [pdf\(1.96 MB\)](#)  Additional Information: [full citation](#), [abstract](#), [references](#)  
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Aspectual classification maps verbs to a small set of primitive categories in order to reason about time. This classification is necessary for interpreting temporal modifiers and assessing temporal relationships, and is therefore a required component for many natural language applications. A verb's aspectual category can be predicted by co-occurrence frequencies between the verb and certain linguistic modifiers. These frequency measures, called linguistic indicators, are chosen by linguistic insi ...

## 17 Data clustering: a review

A. K. Jain, M. N. Murty, P. J. Flynn

September 1999 **ACM Computing Surveys (CSUR)**, Volume 31 Issue 3

Full text available:  [pdf\(636.24 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)


Clustering is the unsupervised classification of patterns (observations, data items, or feature vectors) into groups (clusters). The clustering problem has been addressed in many contexts and by researchers in many disciplines; this reflects its broad appeal and usefulness as one of the steps in exploratory data analysis. However, clustering is a difficult problem combinatorially, and differences in assumptions and contexts in different communities has made the transfer of useful generic co ...

**Keywords:** cluster analysis, clustering applications, exploratory data analysis, incremental clustering, similarity indices, unsupervised learning

## 18 Relevance models to help estimate document and query parameters

David Bodoff

July 2004 **ACM Transactions on Information Systems (TOIS)**, Volume 22 Issue 3

Full text available:  [pdf\(259.94 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A central idea of Language Models is that documents (and perhaps queries) are random variables, generated by data-generating functions that are characterized by document (query) parameters. The key new idea of this paper is to model that a relevance judgment is also generated stochastically, and that its data generating function is also governed by those same document and query parameters. The result of this addition is that any available relevance judgments are easily incorporated as additional ...

**Keywords:** Probabilistic models, language models

## 19 Special issue on ICML: Learning probabilistic models of link structure

Lisa Getoor, Nir Friedman, Daphne Koller, Benjamin Taskar

March 2003 **The Journal of Machine Learning Research**, Volume 3

Full text available:  [pdf\(479.67 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Most real-world data is heterogeneous and richly interconnected. Examples include the Web, hypertext, bibliometric data and social networks. In contrast, most statistical learning methods work with "flat" data representations, forcing us to convert our data into a form that loses much of the link structure. The recently introduced framework of *probabilistic relational models* (PRMs) embraces the object-relational nature of structured data by capturing probabilistic interactions between att ...

## 20 A logical semantics for object-oriented databases

José Meseguer, Xiaolei Qian

June 1993 **ACM SIGMOD Record , Proceedings of the 1993 ACM SIGMOD international conference on Management of data**, Volume 22 Issue 2

Full text available:  [pdf\(1.15 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Although the mathematical foundations of relational databases are very well established, the state of affairs for object-oriented databases is much less satisfactory. We propose a semantic foundation for object-oriented databases based on a simple logic of change called rewriting logic, and a language called MaudeLog that is based on that logic. Some key advantages of our approach include its logical nature, its simplicity without any need for higher-order features, the fact that ...

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Relevance scale ☐ ☐ ☐ ☐ ☐**21** Algorithmic issues in modeling motion

Pankaj K. Agarwal, Leonidas J. Guibas, Herbert Edelsbrunner, Jeff Erickson, Michael Isard, Sarel Har-Peled, John Hersberger, Christian Jensen, Lydia Kavraki, Patrice Koehl, Ming Lin, Dinesh Manocha, Dimitris Metaxas, Brian Mirtich, David Mount, S. Muthukrishnan, Dinesh Pai, Elisha Sacks, Jack Snoeyink, Subhash Suri, Orit Wolfson  
 December 2002 **ACM Computing Surveys (CSUR)**, Volume 34 Issue 4

Full text available: ☒ pdf(205.25 KB)
 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This article is a survey of research areas in which motion plays a pivotal role. The aim of the article is to review current approaches to modeling motion together with related data structures and algorithms, and to summarize the challenges that lie ahead in producing a more unified theory of motion representation that would be useful across several disciplines.

**Keywords:** Computational geometry, computer vision, mobile networks, modeling, molecular biology, motion modeling, physical simulation, robotics, spatio-temporal databases

**22** Simulation and implementation issues: Towards realistic mobility models for mobile ad hoc networks

Amit Jardosh, Elizabeth M. Belding-Royer, Kevin C. Almeroth, Subhash Suri  
 September 2003 **Proceedings of the 9th annual international conference on Mobile computing and networking**

Full text available: ☒ pdf(224.51 KB)
 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

One of the most important methods for evaluating the characteristics of ad hoc networking protocols is through the use of simulation. Simulation provides researchers with a number of significant benefits, including repeatable scenarios, isolation of parameters, and exploration of a variety of metrics. The topology and movement of the nodes in the simulation are key factors in the performance of the network protocol under study. Once the nodes have been initially distributed, the mobility model d ...

**Keywords:** ad hoc networks, mobility models, simulations

**23** Bounding CPU utilization as a part of the model design and the scenario design of a large-scale military training simulation

William R. Merritt  
 December 1998 **Proceedings of the 30th conference on Winter simulation**

Full text available:  [pdf\(71.93 KB\)](#)Additional Information: [full citation](#), [references](#), [index terms](#)**24 Spatial queries in dynamic environments**

Yufei Tao, Dimitris Papadias

June 2003 **ACM Transactions on Database Systems (TODS)**, Volume 28 Issue 2Full text available:  [pdf\(1.21 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Conventional spatial queries are usually meaningless in dynamic environments since their results may be invalidated as soon as the query or data objects move. In this paper we formulate two novel query types, *time parameterized* and *continuous queries*, applicable in such environments. A time-parameterized query retrieves the *actual result* at the time when the query is issued, the *expiry time* of the result given the current motion of the query and database objects, and ...

**Keywords:** Database, continuous, spatio-temporal, time-parameterized

**25 MPEG-4: an object-based multimedia coding standard supporting mobile applications**

Atul Puri, Alexandros Eleftheriadis

June 1998 **Mobile Networks and Applications**, Volume 3 Issue 1Full text available:  [pdf\(747.80 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The ISO MPEG committee, after successful completion of the MPEG-1 and the MPEG-2 standards is currently working on MPEG-4, the third MPEG standard. Originally, MPEG-4 was conceived to be a standard for coding of limited complexity audio-visual scenes at very low bit-rates; however, in July 1994, its scope was expanded to include coding of scenes as a collection of individual audio-visual objects and enabling a range of advanced functionalities not supported by other standards. One of the ke ...

**26 Modeling of discrete event systems: A holistic and incremental approach using Petri nets**

Carmen-Veronica Bobeanu, Eugene J. H. Kerckhoffs, Hendrik Van Landeghem

October 2004 **ACM Transactions on Modeling and Computer Simulation (TOMACS)**, Volume 14 Issue 4Full text available:  [pdf\(618.20 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this article, the authors provide an alternative view on Petri nets modeling of discrete event systems. The proposed modeling procedure follows the Systems Specification guidelines underlying the well-known DEVS modeling formalism. The authors' endeavour is towards perfecting the design of reusable Petri nets-based models by searching for a good primitive for a modular model construction and the introduction of coupling templates as standardised means to couple building block components. A ...

**Keywords:** Algebraic structures, DEVS, Petri nets, experimental frame, structural modeling

**27 The power of languages for the manipulation of complex values**

Serge Abiteboul, Catriel Beeri

October 1995 **The VLDB Journal — The International Journal on Very Large Data Bases**, Volume 4 Issue 4Full text available:  [pdf\(3.93 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Various models and languages for describing and manipulating hierarchically structured data have been proposed. Algebraic, calculus-based, and logic-programming oriented languages have all been considered. This article presents a general model for complex values (i.e., values with hierarchical structures), and languages for it based on the three paradigms. The algebraic language generalizes those presented in the literature; it is shown to be related to

the functional style of programming advocacy ...

**Keywords:** complex object, complex value, database, database model, query language

## 28 An authorization model for temporal and derived data: securing information portals

Vijayalakshmi Atluri, Avigdor Gal

February 2002 **ACM Transactions on Information and System Security (TISSEC)**, Volume 5 Issue 1

Full text available:  [pdf\(406.85 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


The term *information portals* refers to Web sites that serve as main providers of focused information, gathered from distributed data sources. Gathering and disseminating information through information portals introduce new security challenges. In particular, the authorization specifications, as well as the granting process, are temporal by nature. Also, more often than not, the information provided by the portal is in fact derived from more than one backend data source. Therefore, any au ...

**Keywords:** Access control, authorization administration, derived data, temporal data

## 29 Query evaluation techniques for large databases

Goetz Graefe

June 1993 **ACM Computing Surveys (CSUR)**, Volume 25 Issue 2

Full text available:  [pdf\(9.37 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)


Database management systems will continue to manage large data volumes. Thus, efficient algorithms for accessing and manipulating large sets and sequences will be required to provide acceptable performance. The advent of object-oriented and extensible database systems will not solve this problem. On the contrary, modern data models exacerbate the problem: In order to manipulate large sets of complex objects as efficiently as today's database systems manipulate simple records, query-processi ...

**Keywords:** complex query evaluation plans, dynamic query evaluation plans, extensible database systems, iterators, object-oriented database systems, operator model of parallelization, parallel algorithms, relational database systems, set-matching algorithms, sort-hash duality

## 30 Toward a psychophysically-based light reflection model for image synthesis

Fabio Pellacini, James A. Ferwerda, Donald P. Greenberg

July 2000 **Proceedings of the 27th annual conference on Computer graphics and interactive techniques**

Full text available:  [pdf\(5.73 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper we introduce a new light reflection model for image synthesis based on experimental studies of surface gloss perception. To develop the model, we've conducted two experiments that explore the relationships between the physical parameters used to describe the reflectance properties of glossy surfaces and the perceptual dimensions of glossy appearance. In the first experiment we use multidimensional scaling techniques to reveal the dimensionality of gloss perception for simulate ...

**Keywords:** experimentation, gloss, human factors, light reflection models, visual perception

## 31 Modeling methodology a: Optimization and response surfaces: an optimization-based multi-resolution simulation methodology

Darren T. Drewry, Paul F. Reynolds, William R. Emanuel

December 2002 **Proceedings of the 34th conference on Winter simulation: exploring new frontiers**

Full text available:  [pdf\(249.88 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

The need for new approaches to the consistent simulation of related phenomena at multiple levels of resolution is great. While many fields of application would benefit from a complete and approachable solution to this problem, such solutions have proven extremely difficult. We present a multi-resolution simulation methodology which uses numerical optimization as a tool for maintaining external consistency between models of the same phenomena operating at different levels of temporal and/or sp ...

### 32 Modeling methodology: Models and representation of their ownership

Hessam S. Sarjoughian, Bernard P. Zeigler

December 2000 **Proceedings of the 32nd conference on Winter simulation**

Full text available:  [pdf\(316.14 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Models, similar to other intellectual properties, are increasingly being treated as commodities worthy of protection. Providing ownership for models is key for promoting model reusability, composability, and distributed simulation. However, to date, it appears no principled approach has been developed to support ownership of models. Instead, individuals such as modelers and legal personnel employ ad hoc means to obtain and (re) use models developed and owned by others. In this article, we briefly ...

### 33 Numerically estimating internal models of dynamic virtual objects

G. Robles-De-La-Torre, R. Sekuler

October 2004 **ACM Transactions on Applied Perception (TAP)**, Volume 1 Issue 2

Full text available:  [pdf\(584.66 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Precise manipulation of objects is ordinarily limited by visual, kinesthetic, motor, and cognitive factors. Specially designed virtual objects and tasks minimize such limitations, making it possible to isolate and estimate the internal model that guides subjects' performance. Subjects manipulated a computer-generated virtual object (vO), attempting to align vO to a target whose position changed randomly every 10 s. To analyze the control actions subjects use while manipulating the ...

**Keywords:** Dynamics, human cognition, human information processing, ideal performer, internal model, virtual object, virtual reality

### 34 Special issue on spatial database systems: Qualitative representation of spatial knowledge in two-dimensional space

Dimitris Papadias, Timos Sellis

October 1994 **The VLDB Journal — The International Journal on Very Large Data Bases**, Volume 3 Issue 4

Full text available:  [pdf\(2.09 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)


Various relation-based systems, concerned with the qualitative representation and processing of spatial knowledge, have been developed in numerous application domains. In this article, we identify the common concepts underlying qualitative spatial knowledge representation, we compare the representational properties of the different systems, and we outline the computational tasks involved in relation-based spatial information processing. We also describe *symbolic spatial indexes*, relation- ...

**Keywords:** qualitative spatial information processing, representation of direction and topological relations, spatial data models, spatial query languages

### 35 Distributional clustering of English words

Fernando Pereira, Naftali Tishby, Lillian Lee

June 1993 **Proceedings of the 31st conference on Association for Computational Linguistics**

Full text available:  [pdf\(756.61 KB\)](#)

 [Publisher Site](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

We describe and evaluate experimentally a method for clustering words according to their distribution in particular syntactic contexts. Words are represented by the relative frequency distributions of contexts in which they appear, and relative entropy between those distributions is used as the similarity measure for clustering. Clusters are represented by average context distributions derived from the given words according to their probabilities of cluster membership. In many cases, the cluster ...

36 Reports from KDD-2001: KDD Cup 2001 report

Jie Cheng, Christos Hatzis, Hisashi Hayashi, Mark-A. Krogel, Shinichi Morishita, David Page, Jun Sese

January 2002 **ACM SIGKDD Explorations Newsletter**, Volume 3 Issue 2

Full text available:  [pdf\(1.96 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)


This paper presents results and lessons from KDD Cup 2001. KDD Cup 2001 focused on mining biological databases. It involved three cutting-edge tasks related to drug design and genomics.

**Keywords:** Competition, biology, drug design, genomics

37 New data models and languages—the challenge

Catriel Beeri

July 1992 **Proceedings of the eleventh ACM SIGACT-SIGMOD-SIGART symposium on Principles of database systems**

Full text available:  [pdf\(1.39 MB\)](#)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

New data models and languages have been the focus of attention in database research in the last decade. The object-oriented paradigm is a convenient vehicle for describing this research, its accomplishments, and for considering which directions are now interesting. This paper presents some concepts of object-oriented databases, and then considers recent interesting developments concerning query languages, object identities, views and meta-data.

38 Scheduling real-time transactions: a performance evaluation

Robert K. Abbott, Hector Garcia-Molina

September 1992 **ACM Transactions on Database Systems (TODS)**, Volume 17 Issue 3

Full text available:  [pdf\(2.93 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)

**Keywords:** deadlines, locking protocols, real-time systems

39 End-to-end WAN service availability

Michael Dahlin, Bharat Baddepudi V. Chandra, Lei Gao, Amol Nayate

April 2003 **IEEE/ACM Transactions on Networking (TON)**, Volume 11 Issue 2

Full text available:  [pdf\(684.07 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper seeks to understand how network failures affect the availability of service delivery across wide-area networks (WANs) and to evaluate classes of techniques for improving end-to-end service availability. Using several large-scale connectivity traces, we develop a model of network unavailability that includes key parameters such as failure location and failure duration. We then use trace-based simulation to evaluate several classes


of techniques for coping with network unavailability. W ...

**Keywords:** availability, disconnected operation, failure model, internet, overlay routing, replication, world-wide web

#### 40 Haptics: Haptics-based volumetric modeling using dynamic spline-based implicit functions

Jing Hua, Hong Qin

October 2002 **Proceedings of the 2002 IEEE symposium on Volume visualization and graphics**

Full text available:  pdf(5.78 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper systematically presents a novel haptics-based volumetric modeling framework, which is founded upon volumetric implicit functions and powerful physics-based modeling. The volumetric implicit functions incorporate hierarchical B-splines, CSG-based functional composition, and knot insertion to facilitate multiresolution editing and level of details (LODs) control. Our dynamic volumes are semi-algebraic sets of implicit functions and are governed by the principle of dynamics, hence respon ...

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